

Date: February 28, 1968

KSC APOLLO PROGRAM DIRECTIVE NO. 19

TO: Distribution

FROM: R. L. McMillan
Apollo Program Manager

SUBJECT: Apollo Program Equipment Cannibalization Control

REFERENCE: OMSF Apollo Program Directive No. 36, MA-009-036-1A
Dated January 8, 1968, Same Subject

I PURPOSE

The practice of removing components from one end item for installation on another to meet priority requirements is commonly called "cannibalization". Because of the hurried circumstances under which this practice often takes place, it carries an inherent danger of lack of control over the cannibalized end item.

This directive establishes policy guidance and identifies the responsibilities for control of cannibalization.

For the purpose of this directive Controlled Cannibalization is defined as: "The authorized removal of a specific part or component from one end item for installation on another end item to meet priority requirements, including the obligation of recording the removal; replacing the specific cannibalized part or component, and accomplishing those tests necessary to demonstrate that the cannibalized end item has been restored to its original acceptance status."

NOTE - Cannibalization under any condition is undesirable and should be resorted to only in those cases of extreme urgency when inability to obtain the required part through normal supply channels would adversely affect test schedules or mission requirements.

II SCOPE

The provisions of this directive apply to all Apollo Program vehicle and ground support equipment including mission support real property equipment for which KSC or its contractors have operation or maintenance responsibility.

III

APPLICABILITY

- A. The KSC organizations involved in the implementation of this directive are:
 - 1. Director of Design Engineering
 - 2. Director of Installation Support
 - 3. Director of Launch Operations
 - 4. Director of Technical Support
 - 5. Director, Quality Assurance
 - 6. Apollo Program Manager
- B. Contractor and sub-contractor organizations supporting the Directorates are also responsible for implementation.

IV

REQUIREMENTS:

- A. Thorough authoritative action will be taken to obtain the needed item through appropriate supply channels prior to proceeding with cannibalization.
- B. Each recommendation to cannibalize an equipment (component, etc.) will be carefully reviewed prior to approval, to determine the impact on the major end item being cannibalized.
- C. KSC and KSC delegated Government Agencies responsible for executing an Apollo equipment cannibalization action are responsible for having a documented control procedure to the contractor level.
- D. Each affected organization must concur in each action.
- E. All of the following conditions must be present before cannibalization is approved:
 - 1. A serviceable replacement part cannot be obtained through the supply channels.
 - 2. The failed part cannot be locally repaired and tested in time to meet scheduled requirements.
 - 3. The equipment from which the failed part is being removed is urgently needed for use to meet a schedule milestone.
 - 4. A completely serviceable part, identical in form, fit and function to the failed part, can be readily removed from

another unit of equipment having a lesser priority for meeting scheduled milestones.

NOTE: Serviceability of the cannibalized part must be certified through satisfactory performance in the system or subsystem from which it is being removed or through bench tests when resources for such certification are available. Waiver of this test requirement to be made at the management level specified in paragraph IV. F. below.

- F. If cannibalization is to occur a Cannibalization Record Form (See Exhibit "A" for format) must be initiated and approvals made at a sufficiently high management level to assure compliance with the conditions cited in paragraph VI. E. above and to assure positive control over equipment and schedule integrity.
- G. An approved quality assurance form (KSC Form 1-51 or equivalent support or operations & maintenance contractors forms as approved by existing Technical Instructions), must be initiated to identify the assembly from which a part has been removed as discrepant. The disposition instructions (remove and/or replace) must ensure that the assembly is returned to its proper physical and functional configuration.
- H. Procedures will be developed to insure complete visibility of all actions necessary for assuring the replacement of removed components. These procedures will be developed and documented by the responsible NASA-KSC and contractor quality assurance organization(s) and coordinated with all KSC Directorates and offices having Logistics responsibilities. The procedure(s) developed must specify the necessary documentation to ensure immediate visibility on "Controlled cannibalization" that can be traced rapidly through the hardware and spares record and status reporting system.

V

GROUND RULES FOR FULL IMPLEMENTATION OF CONTROLLED CANNIBALIZATION

Each Operating and/or Maintenance Organization shall prepare and maintain a record of cannibalization actions executed by that organization. This record will be assessed by the Apollo Program Manager, Program Control Office, (AP-PCO), as required. The minimum data elements to be included in the record are as follows:

- A. Cannibalization Control Number (Directorate administered)
- B. Part Number
- C. Part Name
- D. System and identification of equipment with the void due to cannibalization.
- E. Estimated date of delivery of new or repaired part

- F. Remarks to include the serial number of the serviceable part which was removed and the equipment system on which it was installed.

VI

AUTHORITIES AND RESPONSIBILITIES

- A. Director of Design Engineering;
Director of Installation Support;
Director of Launch Operations;
Director of Technical Support; shall be responsible for:
1. Implementing an internally controlled cannibalization program with centralized administration.
 2. Assuring that every effort has been extended to obtain the needed items through established supply channels.
 3. Assuring that proper controls are initiated to prevent uncontrolled cannibalization.
 4. Assuring that all records and information are accurate and that a control number obtained from the Directorates centralized administration is assigned to each controlled cannibalization action.
 5. Performing surveillance evaluation audits of contractors, sub-contractors and KSC internal operations, and as applicable, other NASA delegated agencies, to determine conformance with this directive.
 6. Providing the Apollo Program Manager with reports as may be required of controlled cannibalization actions.
 7. Assuring that action has been taken to replace the cannibalized component and that replacement is accomplished.
- B. Director, Quality Assurance (QA) shall be responsible for:
- Monitoring the controlled cannibalization program to assure adherence to KSC policy and procedures and coordinating the findings with the Apollo Program Manager.
- C. The Apollo Program Manager (AP) is responsible for:
1. Establishing the controlled cannibalization policy as it pertains to the Apollo Program.
 2. Reviewing and concurring in all KSC procedures developed for controlled cannibalization.
 3. Assuring that the procedures are effectively coordinated within KSC.
 4. Directing the implementation of the controlled cannibalization program and determining its effectiveness as it pertains to the Apollo Program.

CANNIBALIZATION RECORD

CONTROL NO. _____

DATE _____

REQUESTING ORGANIZATION

EQUIPMENT CLASS		LVGSE <input type="checkbox"/>	OLSE <input type="checkbox"/>	ENGINE	SYSTEM REJECTION NO.	NCR/WI/PROC.
STAGE <input type="checkbox"/>	STAGE GSE <input type="checkbox"/>	LSE <input type="checkbox"/>	LVIS <input type="checkbox"/>	ENGINE GSE <input type="checkbox"/>		
SYSTEM REQUIRING PART.						
REQUESTED PART NUMBER		NOMENCLATURE		QTY	S/N OF FAILED ITEM	
USED-ON (PRESENT LOCATION)		NOMENCLATURE		EFF.	S/N OF USED-ON	
REQUESTING ORGANIZATION		REQUESTED BY		ORG. NO.	M. S.	
IMPACT				SIGNATURE*		EXT.

RELINQUISHING ORGANIZATION

SYSTEM WITH INSTALLED PART	PART NUMBER	NOMENCLATURE	QTY	S/N
R/R INITIATED DATE	DATE ITEM REMOVED	DATE TO PRODUCTION CONTROL	DATE REPLACEMENT REQUIRED	
SYSTEM RCP NO.	REPLACEMENT WILL SATISFY, NCR/WI/PROC.		EFF.	
REMOVAL IMPACT		SIGNATURE**		EXT.
RELINQUISHING ORGANIZATION NO.	APPROVED BY	MAIL STOP	EXT.	
ACCEPTANCE TESTING STATUS	CERTIFIED BY	RETESTING REQUIRED	CERTIFIED BY	

REPLACEMENT STATUS

RESP. PROVISIONING SOURCE	PR. NUMBER	PQ. NUMBER	QTY	EOO	REMARKS
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APPROVAL

L.O. ENGINEERING SUPERVISOR	EXT.	SUPPORT OPERATIONS SUPERVISOR	EXT.
QUALITY CONTROL SUPERVISOR	EXT.	PRODUCTION CONTROL SUPERVISOR	EXT.

NASA APPROVAL ONLY IF REMOVAL WILL INVALIDATE NASA ACCEPTANCE OF SYSTEM

*Authorized in writing to request cannibalization
 **Authorized in writing to approve cannibalization

EXHIBIT "A"